he has added several species to the Catalogue already published, and has corrected and verified many of his previous observations*. He is now about to publish a series of *fifty* coloured lithographic drawings of the birds of the peninsula of India, to be entitled 'Illustrations of Indian Ornithology;' the drawings to be of the size of those accompanying the Catalogue, but the colouring to be more highly finished. They will be struck off both on royal 8vo and 4to sized paper, and the price will be respectively 20 and 25 rupees, or 2*l.* and 2*l.* 10*s.* We trust, as the work is limited, that it will meet with encouragement from the ornithologists of his own country.

PROCEEDINGS OF LEARNED SOCIETIES.

LINNÆAN SOCIETY.

December 21, 1841.—E. Forster, Esq., V.P., in the Chair.

Read an extract of a letter from William Griffith, Esq., F.L.S., to R. H. Solly, Esq., F.L.S., dated Serampore, the 11th of October 1841, containing the following observations:—

"In *Santalum* the ovulum consists of a nucleus and an embryo-sac, prolonged both beyond the apex and base of the nucleus; the albumen and embryo are developed in the exserted part above the septum; the mass of the embryo is developed directly from the vesicle, which is the termination of a pollen tube; the seed (albumen) has no other proper covering than the incorporated upper separable part of the embryo-sac.

"In *Osyris* the ovulum is reduced to a nucleus and an embryonary sac, prolonged exactly in the same directions as in *Santalum*, but not to such a degree anteriorly; this anterior portion resembling exactly the unchanged part of the sac of *Santalum* below the septum. The albumen and embryo are formed outside the sac, and are absolutely naked, or whatever covering they may have did not enter into the composition of the ovulum."

Mr. Griffith adds, "I have lately looked at *Isoetes capsularis*, Roxb.; it is an instructive plant, for it shows that botanists are mistaken in their supposition as to the male. In Roxburgh's plant the contents of the sporangium are sometimes of two sorts, but both have the same origin, both are precisely similarly constituted, except perhaps as to contents; and the largest of these, the males of authors, become afterwards like the others, but larger. There can be no doubt that in all these plants the true sporules or seeds are those produced by division of an original simple cell or its contents. *Isoetes* and *Azolla* prove too a thing of some importance, that the dissimilar organs which have so puzzled botanists may have a similar origin. The true male of *Isoetes* will probably turn out to be the oblong, cordate, fleshy laminæ above the female. On the male my observations were stopped by indisposition. As a male it is certainly anomalous; it is probably, I conjecture, developed originally within the leaf, and the scale between it and the female is probably analogous to the indusium of ferns. The most instructive plant is *Anthoceros* (which is not a *Hepatica*), for this may explain Ferns by showing that a pre-existing organ, to be acted upon by the male influence, is not necessary. Endlicher says *Isoetes* has no stomata; De Candolle figures them in his 'Organographie;' in *I. capsularis* they are very evident: no matter whether emerged or submerged, all plants having a cutis have stomata."

---

* Catalogue of the Birds of the Peninsula of India, by T. C. Jerdon. Madras, 1839.

Read also a paper "On a new genus of Plants from Chile." By John Miers, Esq., F.L.S.

This genus, which is named by Mr. Miers *Solenomelus,* on account of the confluence into a tubular form both of the stamina and stigmata, belongs to the natural order *Irideæ,* and is thus characterized:

SOLENOMELUS.

Cruckshanksia, *Miers, Travels in Chile,* ii. p. 529. *non Hook.*

Perianthium petaloideum; tubo brevi incurvo; limbo 6-partito, laciniis patentibus, 3 superioribus erectioribus, 3 inferioribus deflexis. *Tubus stamineus* cum tubo perianthii coalitus, demùm liber, ore antheras 3 sessiles gerens. *Stylus* filiformis. *Stigma* integrum, urceolato-tubulosum, margine ciliatum. *Capsula* triquetra, trilocularis, loculicido-trivalvis.—Herbæ *Chilenses perennes, habitu* Sisyrinchii. Spatha *bivalvis, dorso sub apice mucronata.* Flores *breviter pedicellati.*

1. *Solenomelus Chilensis,* foliis lineari-ensiformibus, corollâ aurantiacâ.
Cruckshanksia graminea, *Miers, Travels in Chile,* ii. p. 529.
Hab. apud Concon, locis umbrosis.

2. *Solenomelus punctatus,* foliis angustioribus, corollâ aurantiacâ; laciniis singulis supra basin puncto sanguineo notatis.
Hab. prope Concepcion.

Mr. Miers observes, that the curved corolla, the coherence of the filaments throughout their entire length, and the union of the stigmata into an urceolate tube, afford characters that sufficiently distinguish this genus from *Sisyrinchium,* to which it is in other respects most nearly related. In all the species of the latter genus that he has examined he has found a portion of the filaments free; and he thinks the genus should be limited to those species in which the stamina are only partially united. This would exclude *S. odoratissimum,* Cav. (which is apparently the same as *S. Narcissoides,* Lindl.) and *S. flexuosum,* Lindl., described as having entirely united stamina, and further differing from *Sisyrinchium* in having a long infundibuliform corolla, with more distinct markings, and a very odoriferous smell. On these species Mr. Miers proposes to found a genus under the name of *Symphyostemon*; agreeing with *Solenomelus* in the complete union of its stamina, but differing by its deeply cleft style and the shape of its corolla. He thinks also that several species added to *Sisyrinchium* by Sprengel, such as *S. collinum, S. filiforme* and *S. flexuosum,* should be discarded from it, and believes that the entire genus requires a revision, for which he regrets that he does not possess sufficient materials.

Read also a "Notice of a new species of *Araucaria* from the neighbourhood of Moreton Bay; and of the Germination of *Nuytsia flori-*

bunda," in a letter from J. C. Bidwill, Esq., to Richard Taylor, Esq., Under Sec. L.S. (See *Ann. Nat. Hist.* vol. viii. p. 438.)

February 1, 1842.—The Bishop of Norwich, President, in the Chair.

Read, "Contributions to Vegetable Embryology, from Observations on the Origin and Development of the Embryo in *Tropæolum majus*." By Herbert Giraud, M.D., communicated by the Secretary.

After referring to the researches of MM. Schleiden, Wydler, Mirbel and Spach, and A. St. Hilaire, on this important point, Dr. Giraud states that he was induced to select *Tropæolum* as the subject of his own observations on account of its solitary ovula, and their comparatively large size, which render the individuals of this family, as well as the allied *Geraniaceæ*, peculiarly fitted for the purpose. He arranges his observations under seven general heads corresponding with as many progressive periods in the growth of the female organs, and extending from the completion of the anatropous development of the ovule to the perfect formation of the embryo; or from the commencement of the expansion of the bud to the complete formation of the fruit. The results are collected from a great number of dissections.

In the *first* period, or just before the expansion of the bud, a longitudinal section of the carpellum from its dorsum towards the axis of the pistillum, dividing the ovule, shows the latter to have completed its anatropous development. A portion of rather firm and dense cellular tissue enclosing a bundle of vessels descends from the placenta and in apposition with it to form the raphe, and terminates in the base of the ovule. The nucleus has only one integument, at the apex of which is the exostome or micropyle, opening close by and to the outside of the point of attachment; and the conducting tissue of the style may be traced into the carpellary cavity as far as the exostome.

In the *second* period, during which the expansion of the bud and the dehiscence of the anthers commence, and therefore before impregnation, a small elliptical cavity makes its appearance near the apex of the nucleus, having a delicate lining membrane formed by the walls of the surrounding cells : this cavity is the embryo-sac, and a minute canal may be traced leading from it to the exostome. The apex of the embryo-sac encloses at this period a quantity of organizable mucilage containing many minute bodies having the appearance and character of cytoblasts.

In the *third* period, the apex of the nucleus and of its integument becomes slightly inclined towards the placenta. The embryo-sac is much enlarged and lengthened; its mucilage has disappeared and given place to an elongated diaphanous utricle (*utricule primordiale*, Mirbel; *vésicule embryonnaire*, Meyen; *extrémité antérieure du boyau pollinique*, Schleiden;) containing a quantity of globular matter or cytoblasts. This primary utricle is developed wholly within the embryo-sac, from which it is obviously distinct.

The *fourth* period occurs after impregnation. The pollen tubes do not extend into the carpellary cavity; but the fovilla with its granules is found abundantly in the passage leading from the style to the exostome. With the increased development of the embryo-sac, the primary utricle elongates and becomes distinctly cellular by the development of minute cells in its interior, while at the extremity next the base of the nucleus it is terminated by a spherical mass consisting of globular cells. The primary utricle at this period assumes the character of the suspensor (Mirbel), and its spherical extremity constitutes the first trace of the embryo.

In the *fifth* period the apex of the nucleus and of its integument becomes more inclined towards the placenta; the spherical extremity of the suspensor enlarges, and it becomes more evident that it constitutes the rudimental embryo. In the mean time the suspensor has become lengthened by an increase in the number of its cells; and its upper extremity is found to be protruded through the apex of the embryo-sac, the apex of the nucleus and the micropyle. From this extremity there is a considerable development of cells, many of which hang loosely in the passage leading to the conducting tissue of the style, while the rest unite in forming a process which passes down the outer side of the ovulum within the carpellary cavity. This process is composed of from nine to twelve rows of cells, and its extremity resembles in appearance and in the anatomical condition of its cells the spongiole of a root. By a slight traction of this cellular process the suspensor with the embryo may be withdrawn from the embryo-sac through the exostome, thus proving the continuity of the process with the suspensor, and through it with the embryo itself.

During the *sixth* period the suspensor becomes more attenuated; and the cellular process has reached the base of the ovulum, the cells of its extremity abounding with cytoblasts, which prove that it is still progressing in development. The embryo also increases in size, and two lateral processes are observed, which evidently form the first traces of the cotyledons.

In the *seventh* period all distinction between the nucleus and its integument ceases, and they form a single envelope enclosing the embryo-sac; the cellular process has become so much developed, that its extremity has passed round the base of the ovulum and is directed towards the placenta; and the lateral processes of the embryo have become distinct fleshy cotyledons, enclosing both the radicle and plumule in corresponding depressions of their opposed surfaces. The subsequent changes consist chiefly in the great development of the cotyledons, which ultimately occupy the entire cavity of the nucleus, filling the space usually taken up by albumen.

From these observations Dr. Giraud deduces the following inferences.

The formation of the embryo-sac and the development of cytoblasts within it having been shown to take place at a period prior to impregnation, and even the primary utricle itself making its appearance before the emission of the pollen from the anther and before the expansion of the stigma, the origin of the primary utricle cannot be referred to the influence of impregnation, nor can it have been derived from the pollen tube pressing before it a fold of the embryo-sac.

The primary utricle at its first formation being quite distinct from the embryo-sac, even at its apex (although brought into contact with it at a subsequent period, and ultimately penetrating it), cannot result from a depression or involution of the embryo-sac, as is maintained by M. Brongniart.

The pollen tubes (which after impregnation may be traced in the conducting tissue of the style) never reaching the micropyle, but pollen granules being found in abundance in the channel leading to it, and being doubtless brought into contact with the outer surface of the embryo-sac through the exostome; and the first trace of the embryo appearing at this time in the formation of the spherical body at the inferior extremity of the primary utricle—Dr. Giraud is led to conclude that the origin of this simple spherical body results from a peculiar process of nutrition, determined by the material or dynamic influence of the fovilla, conveyed through the medium of the primary utricle or suspensor.

The paper was accompanied by a series of drawings representing the ovulum of *Tropæolum* in the several stages of development described.

March 1.—T. Horsfield, M.D., V.P., in the Chair.

Read a paper "On some rare and beautiful Coleopterous Insects from Silhet, the major part belonging to the collection of Frederic Parry, Esq., of Cheltenham." By the Rev. F. W. Hope, F.R.S., F.L.S., &c.

The number of species described amounts to fourteen, one of which is regarded by Mr. Hope as forming the type of a new genus. The following are the generic and specific characters:—

LUCANIDÆ.

Hexarthrius Parryi, niger, mandibulis exsertis subdenticulatis bidentatis, capite thoraceque scabriusculis, elytris posticè castaneis. Long. lin. 36; lat. lin. 10.

Odontolabis Cuvera, ater, mandibulis valdè exsertis denticulatis, elytris pallidè castaneis litterâ V nigrâ signatis. Long. (mandibulis inclusis) lin. 34; lat. lin. 11.

Odontolabis Baladena, niger, mandibulis porrectis multidentatis, capite thoraceque unidentatis. Long. lin. 26; lat. 10.

Dorcas Westermanni, niger, mandibulis porrectis multidentatis capite thoraceque parùm brevioribus. Long. lin. 26½; lat. lin. 9.

Dorcas DeHaani, niger, mandibulis porrectis capite parùm longioribus: dente forti ferè trigono ante basin posito: reliquis minoribus. Long. lin. 22; lat. lin. 7¼.

Hab. in agro Assamensi. Mus. D. Hope.

Lucanus Brahminus, niger, mandibulis valdè exsertis denticulatis capiti thoracique æqualibus, thorace posticè utrinque dentato, elytris glabris marginatis. Long. lin. 24½; lat. lin. 6½.

Lucanus Buddha, niger nitidus, mandibulis valdè porrectis capite thoraceque longioribus denticulatis. Long. lin. 21; lat. lin. 6.

RUTELIDÆ.

Mimela Passerinii, viridis, thoracis lateribus luteolis, elytrorum marginibus elevatis pallidè virescentibus, corpore infrà roseo-cupreo, pectore capillis longis flavescentibus obsito. Long. lin. 9½; lat. lin. 4¼.

Hab. in Montibus Himalayanis.

Buprestidæ.

Chrysochroa Edwardsii, viridi-aurata, thorace cupreo-purpureo, elytris fasciâ irregulari maculâ flavâ insignitis, corpore subtùs roseo-cupreo, pedibus concoloribus. Long. lin. 27; lat. lin. 8¾.

This superb *Buprestis* approaches most nearly to that named *Perottetii* by M. Guérin.

Longicornes.

Monochamus sulphurifer, corpore toto suprà et infrà flavo-sulphureo, antennis pedibusque nigro cinereoque variegatis. Long. lin. 13; lat. lin. 4¾.

Purpuricenus rubripennis, violaceus, elytris rubro-marginatis maculâ subquadratâ in medio disco insignitis, pedibus concoloribus. Long. lin. 15; lat. lin. 4.

Zonopterus, *Hope*.

Caput mandibulis arcuatis, fronte declivi, cornu brevi utrinque ad basin antennarum. *Antennæ* 11-articulatæ, articulo basali apice crassiore, 2do minimo, 3tio longissimo, 4to ferè dimidio minore, 6 sequentibus ferè æqualibus, ultimo longiore acuto. *Thorax* depressus, capite duplò longior. *Elytra* thorace triplò longiora, parallela, apicibus rotundatis. *Pedes* femoribus 4 anterioribus incrassatis, posticis duplò majoribus subcompressis; tibiis posticis subincurvis.

Zonopterus flavitarsis, niger, antennis bicoloribus, thorace nigro-tomentoso, elytris flavo-bifasciatis, femoribus tibiisque atris, tarsis flavis. Long. lin. 15; lat. lin. 4.

Colobothea rubricollis, rubro-picea, antennis concoloribus, elytris nigricantibus maculis flavo-ochraceis aspersis. Long. lin. 15; lat. lin. 4.

Sagridæ.

Sagra Carbunculus, cyanea, elytris igne auroque micantibus, pedibus posticis incrassatis; tibiis incurvis. Long. lin. 4½.

BOTANICAL SOCIETY OF LONDON.

March 18, 1842.—John Edward Gray, Esq., F.R.S., &c., President, in the Chair.

The following donations were announced:—Parts 1, 2 and 3 of 'Algæ Damnonienses,' and Fasciculus 1 of Berkeley's 'British Fungi,' presented by Mrs. Margaret Stovin. The following specimens were exhibited: *Oxalis stricta*, collected at Penzance, and presented by the Royal Horticultural Society of Cornwall; *Elæodendron Argan* (Retz.), collected in the province of Haha, near Deabet, Barbary, by Dr. W. H. Willshire, and presented by him; *Hypnum polymorphum* (Hedw.), collected on the sands of Barrie, Forfarshire, by Mr. Wm. Gardiner, jun., and presented by him.

A paper was read from Edwin Lees, Esq., F.L.S., &c., being "Remarks on the Flora of the Malvern Hills in the counties of Worcester, Hereford, and Gloucester; Part 2, the Hills and their immediate Roots."

In geological language the Malvern Hills form an eruptive or igneous chain, stretching in a narrow ridge nearly due north and south for upwards of nine miles. Quartz, felspar, mica and hornblende are their mineralogical ingredients in numberless varied proportions; but it must be understood, that the greater part of the mass is in a disintegrated state, breaking up into angular fragments of every size, and thus forming debris on and materials for soil at the base of the slopes, while hard masses of granitic rock, weathering the atmospheric wear and tear of centuries, are of comparatively rare occurrence. This of course tends greatly to modify the capacity of these eminences as depositaries of plants, and although rising up boldly in an insular manner in the midst of a flat district, and with no superior heights near at hand, their moderate altitude precludes the growth of any alpine plants, while their complete exposure to the blaze of summer even unfits them for *subalpine* species that grow in shady localities further south. This may be instanced in the *Saxifraga hypnoides*, which, though it grows in the moist recesses of the Cheddar Cliffs, Somersetshire, is entirely absent from every part of this rocky range. On the other hand, *Sedum album*, which no drought can destroy, finds an appropriate home on the exposed cliffs of the principal hills here, flowering when most other plants are completely withered and burnt up by the intolerable heat.

The Phanerogamous vegetation of the Malvern Hills is by no means as varied or remarkable as might at first have been anticipated from its geographical position. But in fact the breadth of the chain nowhere amounts to a mile, and for the most part does not exceed half a mile. There are scarcely any longitudinal valleys, as in only one place does the chain break distinctly into two parallel heights, and throughout a distance of above nine miles there are but five transverse ones. The average height of the chain above the level of the sea is about 1000 feet, three of the highest hills attaining respectively the altitude of 1300, 1350, and 1444 feet. According to a very accurately taken barometrical observation by Mr. Addison of Great Malvern, the Worcestershire Beacon, which as just stated is 1444 feet in height by the Ordnance Survey, is only 923 feet above the Library at Great Malvern; the slope at the base of the hills being thus shown to be full 500 feet above the level of the Severn.

Such a moderate elevation can scarcely be expected to yield plants of an alpine kind, especially when the ravines, though not without rocks, possess none of a very precipitous character, and the streams that trickle down the hills have but very little relation to the torrents that dash in thunder down the cliffs of stern and rugged mountainous regions. The prevalence of a humid atmosphere from the excess of western and southerly winds is very favourable to the growth of the Cryptogamous tribes, more especially the Lichens, which are perhaps in greater abundance and variety here than within the same space in any other part of Britain. Indeed the late Mr. Purton, author of the 'Midland Flora,' remarked, that even in Wales he scarcely observed any Lichens that were not to be found upon the Malvern Hills. In like manner the Mosses are very luxuriant and abundant on the hills as well as in the woods around their bases, though the beautiful genus *Splachnum* seems to be altogether absent. *Jungermanniæ* constitute a great proportion of the investiture of the hills, though the variety of species is not very remarkable from the comparative scarcity of dripping rocks, yet in one shadowy ravine at least the beautiful *Jungermannia tomentella* is found. *Jungermannia resupinata* is rather abundant, and *Jungermannia ciliata* is excessively common. The Fungi are pretty numerous, and, as might be expected, the Agaric tribe in particular is profusely scattered on the grassy declivities of the hills in the autumnal season. The paper contained a very copious list of habitats, many of the specimens were exhibited, and Mr. Lees proposed to treat of the Cryptogamic vegetation of the hills in a future paper. The Society will thus possess specimens of all the plants mentioned in Mr. Lees's papers on the botany of this district.

BOTANICAL SOCIETY OF EDINBURGH.

This Society held its sixth meeting for the session on Thursday 14th April, Professor Christison in the Chair.

John Wilkinson, Esq., was elected a Resident Fellow; and Frederick M. Adamson, Esq., Glasgow, a Non-resident Fellow.

Donations to the Library and Herbarium were reported from Miss Harvey, Rev. A. Rutherford, and Messrs. Babington, Gutch, Tatham, Lindsay-Carnegie, Newbould, Peacock and Evans.

The following communications were read:—

1. Professor Balfour of Glasgow made some remarks on the natural order *Lecythidaceæ*, and exhibited various specimens of *Lecythis* and *Couratari* from Brazil.

Dr. Balfour also exhibited specimens of *Trigonocarpon olivæforme*, and other fossil Palm-fruits imbedded in sandstone, which had been collected at Stevenston, Ayrshire, by the Rev. David Landsborough.

Dr. Balfour also showed specimens of Snake-nut brought by Dr. W. H. Campbell from Guiana. (See *Ann. N. Hist.* vol. v. p. 202, and Plate V.)

2. Dr. Balfour read extracts from a letter which he had received from Mr. Edward Forbes, dated H.M.S. Beacon, Macri, Asia Minor, February 28, 1842.—Mr. Forbes states, "After returning in October from a round of the islands of the Archipelago, a cruise which was exceedingly fruitful in results as regarded marine zoology[*] and tertiary geology, but in consequence of the season almost fruitless in botany, I found the Beacon at Paros with half her crew laid up with fever, one of her officers dead, and all in bad spirits * * * *. From Paros I set sail in our little schooner to the shores of Asia Minor, and remained in her from October to the end of the year. I was then able to make my promised excursion to the Taurus, ascending the mountains to the height of 9000 feet, and journeying among them for fourteen days; but, though I loaded a mule with boards and paper, I grieve to say I could not fill them, for almost everything had gone out of flower.

"As this country, especially the alpine part (I speak of Lycia), has been visited by no botanist, I gathered every vegetable fragment most religiously with the view of depositing them in the Herbarium of the Edinburgh Botanical Society.

---

[*] The shells dredged up from 200 fathoms were most of them identical with those now found in a fossil state.

"Next week the Beacon goes to Malta. If she had only remained a month longer, I should have had a great many plants, now only beginning to flower. I remain behind with a view of rejoining her in Candia in May. I go up the country, but as it will be impossible during that journey to collect many specimens of everything, I shall content myself with making pretty perfect sets of Lycian plants for the Botanical Society and a few botanists who will turn them to the benefit of science. I have not been fortunate hitherto in procuring materia medica information, but I hope to be so ere long."

Mr. Forbes also enclosed the following account of Lycian vegetation :—

Table of the Winter Vegetation of Lycia.

Date.	Plants in Flower.	Locality.	Habitat.	Ceased to flower.
Dec. 1841	Arisarum vulgare	General	In stony places on limestone.	End Feb. January.
	Clematis vitalba	Island in Gulf of Macri.	Stony places among trees, on limestone.	End Jan.
	Bellis sylvestris	General	Grassy and woody places, limestone and serpentine, &c.	January.
	Narcissus polyanthos	Islands	Grassy places on limestone.	January.
	Crithmum maritimum	Islands	On limestone rocks	——
	Polygonum equisetifolium	Islands	Sea-cliffs, limestone	January.
	Brassica lusitanica ?	Islands	Grassy places on limestone	——
	Passerina hirsuta	Psilis, Xanthus	Sandy flats	March ?
Carob tree forming fruit: wild olive ripe.				
Jan. 1842 1st week.	Mercurialis annua	General	In stony places.	
	Anemone coronaria	General	Grassy places on all kinds of rock.	
	Mandragora officinalis	Macri	Grassy places on limestone	End Feb.
	Amygdalus communis	Macri	On rocks (limestone).	
2nd week.	Euphorbia ?	Macri	Abundant on the gravelly plains.	
	Bellis perennis	General	Grassy places on serpentine, limestone and tertiary, supplanting *B. sylvestris*.	
3rd week.	Trichonema Bulbocodium.	General	On limestone and serpentine hills.	
	Cardamine hirsuta	General	Grassy places.	
	Euphorbia dendroides	Cragus	Near the sea.	
4th week.	Veronica cymbalaria	Xanthus, Macri	Grassy places, and among shrubs on limestone, also on old walls.	
	Veronica agrestis	Xanthus	Fields.	
	Erodium cicutarium	Xanthus	Grassy places.	
	Euphorbia ?	General	In woods on limestone.	
Ferns and Mosses fruiting. Wheat three inches high. End of this month *red Anemone coronaria* are common, before they were mostly purple,				

Table continued.

Date.	Plants in Flower.	Locality.	Habitat.	Ceased to flower.
Feb. 1842 1st week.	Gagea arvensis	General	On hills of limestone and serpentine.	
	Ficaria ranunculoides	Xanthus, Macri	Damp grassy places: not common.	
	Ophrys	Xanthus	Woods.	
	Senecio vulgaris	Patara	Sandy fields.	
	Calendula arvensis	Xanthus	Cultivated fields.	
	Euphorbia helioscopia	Macri, Xanthus	Grassy places.	
	———— peplus	General	Grassy places.	
	Erophila vulgaris	General	On limestone and serpentine hills.	
2nd week.	Thlaspi montanum	Xanthus, Macri	On limestone hills.	
	Lamium amplexicaule, &c.	Xanthus	Grassy and stony places.	
	Leontodon?	Zumbli	On limestone.	
	Thlaspi bursa pastoris	General	On limestone.	
	Erophila?	Zumbli	On serpentine only.	
	Senecio?	Zumbli	Chiefly on serpentine.	
	Solanum nigrum	Oran	Woods, on sandstone.	
3rd week.	Colutea arborescens	General	On limestone and tertiary.	
	Hyoscyamus aureus	Tlos, Macri	On walls.	
	Arabis?	Tlos	On limestone cliffs.	
	Cyclamen?	Zumbli	On limestone in stony places.	
	Tulipa Sibthorpiana	Macri	Bushy places on limestone by the sea.	
4th week.	Scrophularia canina	Macri	On walls.	
	Biscutella eriocarpa	Macri	On walls.	
	Galium?	Macri	On walls.	
	Saxifraga tridactylites	Macri	On limestone rocks.	
	———— hederacea	Macri	On wet limestone rocks.	
	Fumaria capreolata	Macri	Cultivated ground.	
	Crocus?	Mountains.		

Lavandula Stæchas in bud on the serpentine.

3. Dr. Balfour read a report on the Progress and State of Botany in Britain from February 1840 to January 1841, being a continuation of a paper on the same subject submitted by Dr. Greville to the Society, and printed in its Transactions*.

Dr. Balfour noticed the various discoveries which had been made in structural, physiological and descriptive botany,—the floras, monographs and catalogues which had appeared,—the additions made to our knowledge of fossil botany,—the discoveries in the theory of agriculture and vegetable chemistry, and concluded with a catalogue raisonné of all the works and papers on botanical subjects which had been published in Britain during the period embraced by his report.

4. Dr. Balfour next read a communication which he had received from Mr. Ralfs of Penzance, relative to the following species of Algæ:—

---

* The report for the year 1841 will be given by Dr. Graham.

1. *Homœocladia anglica,* Ag. There prevails considerable confusion regarding the plant sent by Mr. Ralfs under this name. It is the *Microcoleus marinus* of Harvey. By some it has been looked upon as *Schizonema xylodes,* and by others as *Osciliatoria chthonoplastes.* From a comparison made with specimens in Mr. Berkeley's Herbarium, Mr. Ralfs is satisfied that his plant is the true *Homœocladia anglica,* and as such he sent specimens to the Society's Herbarium.

2. *Desmidium compressum,* n. sp. Filaments compressed; joints rather broader than long, deeply divided.

Pools Chyan-hâl Moor near Penzance, and Towednack Moor near St. Ives.

This very remarkable and distinct *Desmidium* is not scattered like the other species in loose bundles, but entangled among the leaves of aquatic plants. It is very gelatinous, more so, in fact, than any hitherto discovered; but its mucus is not condensed into a sheath as is that of *D. mucosum* and *D. cylindricum.*

The filaments are much compressed, and therefore appear nearly plane under a lens. The joints are so deeply divided, that at first sight a single one might be mistaken for two. This is more especially the case whilst the endochrome, denser in the centre, obscures the view of that portion which unites the segments of the frustule; but as soon as the joint becomes empty, its nature is distinctly seen. Though in other respects symmetrical, one segment of the frustule is sometimes much smaller than the other. At the centre, where the frustules join, there is a minute gland or process arising from each margin. The projection of these glands is easily seen, even before the frustules separate.

A transverse view shows the endochrome to be stellate, as in the other species, and also that the frustules are compressed, one diameter being about twice as great as the other.

Concerning this discovery Mr. Berkeley remarks in a letter to Mr. Ralfs:—

"I am quite delighted with your new *Desmidium*; your observations are very correct. I see very distinctly the gland between each pair of segments, but as there are no separate joints in my specimen, I cannot quite ascertain its form. It is certainly quite distinct from the other species, and is a most interesting discovery."

Specimens of *Desmidium compressum* and *D. Borreri* were presented to the Society by Mr. Ralfs.

Analysis.

1.	Filaments with a mucous sheath	2.
	Filaments without a mucous sheath	3.
2.	Joints compressed with two angles	*cylindricum.*
	Joints cylindrical without angles	*mucosum.*
3.	Filaments triangular	*Swartzii.*
	Filaments cylindrical or compressed	4.
4.	Joints twice as long as broad, inflated; crenatures minute	*Borreri.*
	Joints not longer than broad, compressed, deeply divided	*compressum.*

PHILOSOPHICAL SOCIETY OF GLASGOW.

The following details were given of experiments made on the lands of Knock, near Largs, in the spring and summer of 1841, by Mr. Wilson.

A piece of three-year-old pasture, of uniform quality, extending to 200 falls, old Scotch measure, was divided into ten lots of twenty falls each, and these were treated as follows, and produced respectively the quantity of well-made hay marked opposite each of the lots, as under:—

Lot.		Produce per lot. *lbs.*	Rate per acre. *lbs.*	Increase per acre. *lbs.*
1.	Left untouched	420	3360	—
2.	2½ barrels of Irish quick-lime added	602	4816	1456
3.	20 cwt. of lime from gas-works....	651	5208	1848
4.	4½ cwt. wood charcoal powder	665	5320	1960
5.	2 bushels of bone dust	693	5544	2184
6.	18 lbs. of nitrate of potash........	742	5936	2576
7.	20 lbs. of nitrate of soda..........	784	6272	2912
8.	2½ bolls of soot	819	6552	3192
9.	28 lbs. of sulphate of ammonia	874	6776	3416
10.	100 gallons of ammoniacal liquor from gas-works, at 5° of Tweddel's hydrometer	945	7560	4200

The value of each of the applications was precisely the same, viz. 5*s.* for each lot, or at the rate of 2*l.* per acre. All the articles were applied at the same time, on the 15th of April 1841, and the grass cut and made into hay in the following month of July.

ROYAL SOCIETY OF EDINBURGH.

March 21, 1842.

1. A paper was read by Richard Parnell, M.D., F.R.S.E., on a new species of British grass, which he named *Holcus biaristatus.* This grass was found in the neighbourhood of Edinburgh, and grows to the height of two feet or more. It is principally characterized by the outer palea of the lowermost floret being furnished with a long dorsal awn, arising immediately beneath the summit, which readily distinguishes it from *Holcus lanatus* and *Holcus mollis,* which have the lowermost floret without an awn. Several specimens were exhibited, and the more minute characters pointed out.

2. Mr. Goodsir presented a paper upon the Ultimate Secreting Structure, and on the Laws of its Function.

After referring to the labours of those anatomists who had verified Malpighi's doctrine of the follicular nature of gland-ducts, the author alluded to Purkinje's hypothesis of the secreting function of the nucleated corpuscles which line these ducts. In a rapid sketch of the results of inquiries since the appearance of Müller's work, ' De penitiore Structurâ Glandularum,' and more particularly of the observations of Henle and others on the closed vesicles which are situated at the extremities of certain ducts, Mr. Goodsir stated that no anatomist had hitherto "proved that secretion takes place within the primitive nucleated cell itself, or had pointed out the intimate nature of the changes which go on in a secreting organ during the performance of its function."

Numerous examples were now given of secretions detected in the cavities of nucleated cells of various glands and secreting surfaces. Among these were the ink of the *Cephalopoda*, and the purple of *Ianthina* and *Aplysia*; bile in an extensive series of animals; urine in the mollusk; milk, &c.

The wall is believed by the author to be the part of the cell engaged in the process of secretion. The cavity contains the secreted substance, and the nucleus is the reproductive organ of the cell. A primitive cell engaged in secretion is denominated by the author a primary secreting cell, and each cell of this kind is endowed with its own peculiar property, according to the organ in which it is situated. The discovery of the secreting agency of the primitive cell does not remove the principal mystery in which the function has always been involved; but the general fact, that the primitive cell is the ultimate secreting structure, is of great value in physiology, inasmuch as it connects secretion with growth as functions regulated by the same laws; and explains one of the greatest difficulties in the science, viz. why a secretion flows from the free surface only of a secreting membrane: *the secretion exists only on the free surface, enclosed in the ripe cells which constitute that surface.*

The author then proceeded to the consideration of the origin, the development, and the disappearance of the primary secreting cell; a subject which necessarily involved the description of the various minute arrangements of glands and other secreting organs. After describing the changes which occur in the testicle of *Squalus cornubicus,* when the organ is in a state of functional activity, and in the liver of *Carcinus Mænas,* it was stated that these were selected as examples of two orders of glands denominated by the author vesicular and follicular.

The changes which occur in the first order of glands consist in the formation and disappearance of closed vesicles or acini. Each acinus might be first a single cell, denominated by the author the primary or *germinal* cell; or secondly, of two or more cells enclosed in the primary cell, and produced from its nucleus. The enclosed cells he denominates the secondary cells of the acinus; and in the cavities of these, between their nuclei and cell walls, the peculiar secretion of the gland is contained. The primary cell, with its included group of cells, each full of secretion, is appended to the extremity or side of one of the terminal ducts, and consequently does not communicate with that duct, a diaphragm formed by a portion of the primary cell wall stretching across the pedicle. When the secretion in the group of included cells is fully elaborated, the diaphragm dissolves or gives way, the cells burst, and the secretion flows along the ducts; the acinus disappearing, and making room for a neighbouring acinus which has in the meantime been advancing in a similar manner. The whole parenchyma of glands of this order is thus, according to these observations, in a constant state of change of development, of maturity and atrophy; this series of changes being in rapidity directly proportional to the profuseness of the secretion.

In the second order of glands, the follicular, as exemplified in the liver of *Carcinus Mænas*, the germinal cell or spot is situated at the blind extremity of the follicle, and the cells produced from this spot, as they advance along the follicle, become distended with their peculiar secretion.

Among other general conclusions deducible from these observations, it appeared that ducts are intercellular passages, into which the secretions formed by cells are cast.

Finally, the author inferred, from the whole inquiry, that, 1st, secretion is a function of, and takes place within, the nucleated cell; and that, 2nd, growth and secretion are identical,—the same process under different circumstances.

MISCELLANEOUS.

NOTES ON MARINE ANIMALS.

June 24th, lat. N. 36° 9′, long. W. 164°, some brown-looking masses are floating about the ship; they are numerous, and appear like fragments of sea-weed. On catching some they proved to be a species of *Anatifa*. They are grouped together in bunches, and on examining them for the marks of attachment to a foreign substance, I thought I could distinguish these in two of the smaller masses, but on searching the larger carefully they were not visible.—25th. We have traversed 120 miles since yesterday, and the *Anatifa* still continues. The temperature of the sea has been from 61° to 65°, and of the air about 65°, throughout the twenty-four hours. We caught more today, and also finer specimens; they are undoubtedly without a place for attachment to a foreign body, for I have again examined them carefully. The water is likewise full of minute animals of the most lively motions.—27th. Lat. N. 43° 3′, long. W. 164° 9′. The *Anatifa* still continues, and since the 24th we have unceasingly been passing through them. Night and day they continue the same, and are surprisingly numerous. According to the log, we have now travelled 332 miles among them. After sunrise this morning the surface of the sea was observed to be covered with multitudes of *Velella*. For the last eight hours, moving at the rate of three miles and a half in the hour, they have been equally numerous. The curious and beautiful processes at their base have among them a great number of small gelatinous animals, but apparently without motion. One of them had a mass of small *Anatifa* within its gripe. Our course, since we have been among these animals, has been northerly with a little occasional zigzag deviation. I feel pretty certain that this is a large assemblage of *Anatifa*, which in all probability have lived here a considerable period, and continue to grow and increase their numbers whilst floating on the surface. Our course being in the direction to